The Wild Inside Out

Fluid Infrastructure in an Amazonian Mining Region

Nestled in the hinterlands of Amazonia, informal gold mining continues largely unnoticed. The 'wild' landscapes that prospectors must negotiate in order to reach and work in these far-flung mine sites consist of unruly forests, raging waterfalls, and unpredictable waterways, locales that restrict and confound formal infrastructural development. In such terrains, prospectors must devise innovative 'fluid infrastructures' that allow the mine's continued existence against all odds. Local perceptions of the wilderness in these locales offer insights into remoteness not as regions untouched and inaccessible, but as intimately connected to the diffuse and manifold forms that global economies take. These are zones in which the wild is in fact turned inside out.

Keywords: Amazonia, gold mining, remoteness, infrastructure, indigenous peoples

Introduction

Deep. This is a word one will frequently encounter when reading about life in the Amazon rainforest, a word that arouses images of remoteness so pervasive that one could become dangerously submerged in its obscurity. Considered one of the last frontier regions of the world, not only is Amazonia perceived to be sparsely populated, but also politically and economically peripheral. The ubiquitous phrase 'deep in the Amazon rainforest…' creeps in everywhere: in news articles, documentaries, NGO web sites, biographies and novels,

and even frequently in academic articles. Perhaps more noteworthy is the fact that, although seemingly innocuous, the term is a corollary of the 'wild' trope that has long been associated with Amazonia and its inhabitants, a concept that brings with it certain representations of a region that is bounded, ahistorical and profoundly mystifying. Moreover, 'deepest Amazonia' encompasses imaginaries of the natural, pristine and untarnished worlds abandoned by the juggernaut of dystopian modernity experienced by the rest of the globe (see Nugent 2018). Indeed, while writing this piece, news articles on uncontacted Amazonian tribes yet again emerged, this time amidst rumours of their massacre by encroaching gold miners. Popular and widespread reports of these so-called 'uncontacted tribes' exemplify these notions of 'wild worlds', arousing heated discussions on the politics of remoteness: should these people be allowed to exist undisturbed in their isolated locales, or should we actively negotiate their remoteness? That is, should we initiate a controlled form of contact that will enable them to navigate the inevitable approach of the 'outside world' (see Napolitano and Ryan 2007)? These perspectives on remoteness are acutely intertwined with a romanticised view of the 'deep', the 'wild', and the untouched, a condition that the rest of the world is seen to have obliterated, or at least is in the process of losing. These two pervasive terms – deep and wild – will be explored in this article with a focus on the latter term as encompassing connotations of the former.

While the example of uncontacted tribes above hinted at the pervasive power of 'the wild' in public imaginaries of Amazonia, the remainder of this article will investigate the exact kind of resource extraction reported to threaten these groups: a remote and clandestine form of gold mining in which thousands of poor individual prospectors enter far-flung locales of Amazonia hoping to strike it rich, activities that are termed 'wildcat' mining by external observers.[i] This article will consider not just imaginaries of wilderness, but also economies of wilderness: in particular how remote zones of the world such as Amazonia are intimately linked to global flows. The protagonists in this story are varied

and hail from numerous spheres of Amazonian life, but narratives will draw predominantly on material from two sites of research: first, the Sanema indigenous peoples who inhabit a community close to a clandestine gold mine in Venezuelan Amazonia;[ii] and second, Andean gold prospectors in Peruvian Amazonia. The degree of accessibility of these mining sites varied,[iii] but the general pattern of this form of 'wildcat' extraction consisted of invasions of inaccessible areas of the forest, where groups of independent miners work with a hydraulic machine and its owner, deforesting areas of forest to enable their water cannons to remove the surface layer of earth and access the gold veins beneath. These isolated mine sites continued to exist despite the lack of supplies, the large numbers of workers with sustenance needs, several attempts by the military to shut them down, rampant malaria and other diseases, and above all their remoteness which compounds all of these other obstacles.

Using an approach to 'fluid infrastructures' - arrangements of connectivity that take advantage of Amazonia's distance, unruliness and topographical barriers - this article will unpack how perceptions and experiences of Amazonia as the quintessence of 'wilderness' interlace with contemporary extractive activities within the region. In this, I will aim to turn the Amazonian wild 'inside out' as it were; that is, to explore remoteness as an 'inside that is socially peripheral' (Schein 2014: 370), as a space with a 'double-ness as both inside and outside the modern' (Piot 2014: 370). This analysis considers 'the wild' not as denoting regions untouched and inaccessible, but rather as intimately connected to, and in many ways defining, the diffuse impacts of wider global processes.

In the sections that follow, I shall start by offering ethnographic descriptions of the complex and multifaceted ways that remoteness and inaccessibility are conceptualised by inhabitants of and visitors to the region, particularly with relation to mining in its hinterlands. This will be followed by a brief history of Amazonian economic connectedness, and then with an overview of theoretical literature on infrastructure to

construct an analytical frame of 'fluid infrastructures'. In the final section I consider how prevalent ideas of remoteness might obscure the existence of thriving 'fluid infrastructures' that actually facilitate broader national and global processes.

Who defines 'the wild'?

Despite the constellation of externally imposed ideologies associated with Amazonia's perceived wildness, vernacular concepts from local inhabitants are not entirely divergent from these same sentiments. I found during fieldwork in Venezuela that my Sanema interlocutors had comparable ideas of, if not remoteness, then certainly concepts closely associated with 'wild' and perhaps even the 'deep'. Such ideas were used as relativizing terms, emerging during narratives that describe immoral 'others' in relation to their own 'civilised' existence.

When recounting commonly-told stories of raids, enemy others or kidnappings, many of my Sanema friends described the perpetrators as inhabiting the 'centre' of the forest. *Waika* people, for example - Yanomami inhabiting southern regions in Amazonia - were described as 'coming from the real centre', often alongside descriptions of them being 'wild' (Sp. *salvaje*), 'fierce' (Sa. *waitili*), and 'all naked, wearing nothing but bark loincloths'. The most fearsome of all beings that emerged from this 'centre', however, were the frightful yet mysterious *oka töpö*, sorcerers who prey on Sanema by lurking at the outskirts of their communities waiting to blow poisonous dust over them as they pass. *Oka töpö* are the epitome of the unknown (and in fact were often described to me in Spanish as *los desconocidos,* the unknowns) because they were nameless beings from unchartered territories that no one has ever seen, but who are said to merely 'exist'. Hailing from the 'centre' of the forest places them beyond the realms of humanity and appropriate morality, and indeed they are seen – unlike true humans - to be driven by revenge and savagery alone. I was told over and over again that they kill Sanema, but that the reasons were never fully known;

most likely, as one stated, 'to satisfy their need to gain vengeance for the death of their kin'. In this sense, the 'centre' of the forest is a place of danger and foreboding, and where only malevolent and savage beings lurk.

The Sanema often express surprising unease about the forest, surprising in that the prevalent representation of forest peoples is that they 'dominate' and delight in the forest and its offerings (see e.g. Morelli 2017: 148; Rival 2002). Members of my hosts family, by contrast, sometimes woke in the morning with stories of their terror at having been awoken in the night to the sound of ghosts' screams echoing through the surrounding jungle. My host mother frequently warned me against bathing in streams alone because, as she said, the 'forest is dangerous'. This apprehension could be interpreted as an intense fear of wild and unknown spaces, of centres thought to be the origin of potent forces in contrast to the benign domesticated margins that the Sanema themselves inhabit. Decoding these vernacular concepts associated with deep wilderness are important for noting variances not only in notions of remoteness, but also in ideas of what constitutes the 'centre'. The Sanema view that the jungle depths mark 'a centre' demonstrates that such hitherto polarised concepts of centre-periphery should not be seen as absolutes, but rather as perspectives determined by a particular positionality (which in Amazonia is also integral to the theory of alterity, see Kelly 2005). This is precisely how we might view 'the wild' as inside out.

The Sanema's sense of dread about the 'centre' of the forest comes most powerfully to the fore when describing clandestine gold mining activities that had been taking place in their territory for at least the past ten years. Although more and more of my research participants desired to benefit from the potential riches available in the mine – from which non-indigenous and neighbouring indigenous peoples were already profiting – their relationship with this foreboding place was highly ambivalent. The following, told by a

young man who had visited the mine to sell gasoline, gives an indication of the apprehension associated with this faraway and untamed place:

> One day, when I was in the mine, I saw two *nonosia* flying overhead; these are shadow-souls of living people. They were huge birds, harpy eagles I think. If people see a *nonosia* they could perhaps kill it and then a Sanema person faraway will die. The bird is a person too, so it's dangerous to kill one. The man whose *nonosia* it was will have pain in his right side and then die quickly. There were two of these birds at the mine that day and when I was watching them one shook its head very strangely when it saw me, so I got scared and ran away. I never want to go back there.

While recounting this strange event, the man seemed perturbed, particularly when affirming that this was very much out of the ordinary; he told me that *nonosia* never behave in such a way, as displaying themselves so conspicuously puts them at great risk of being killed. He stated with a downcast expression that it could even have been his own *nonosia*, his own shadow-soul. His anxieties were clearly evoked by the strange beings appearing at this site, but were also accompanied by his fear of the setting itself, which he repeatedly described as a 'bad place'. He and others often talked of their dread of violence from other miners, fear of the notoriously evil gold spirits (*oto töpö*) who readily take vengeance (see also High 2017: Chapter 3), and the continued expectation of military invasion. This was all bolstered by the site's perceived 'wildness'; a deforested, mud-filled asocial space in the 'centre' of the obscure forest depths.

Notions of the mine's perceived wildness were not merely held by the Sanema, but were also discussed by non-indigenous prospectors that I met. During one of my trips to a nearby town in Venezuela, I met a Polish man named Aleksy.[iv] We were both staying at the same hostel, and at first I took him to be a tourist like many of the others staying there.

While he was indeed travelling around South America, Aleksy also stated openly that he was in that region on a 'money-making expedition', specifically in the search for gold. This immediately grabbed my attention, especially as he proceeded to describe his proposed adventures in a far-flung region in southern Venezuela, in an area of Amazonia that 'no-one visits'. After some time, it was evident that he was talking about the mine near my field site. These small-scale mining activities had rarely appeared in mainstream or international media at the time because of its amorphous social and spatial configurations, which were in some ways challenging to characterise. Aleksy had heard of it nonetheless, as had many others in Southern Venezuela and beyond. Indeed, numerous rumours circulated of a diverse 'workforce' in the site, including prospectors from Colombia, Brazil and even Italy, France and the United States. It intrigued me that Aleksy had even heard of the place, so I asked him to tell me more. He described how he met a Frenchman who had recently returned from this gold mine, earning a significant stash of money by selling rum there. 'He made *lots* of money, thousands of dollars, because it is so remote, and they can't get access to things up there' he told me while sipping from his bottle of beer. He continued; 'People up there are "hungry" for supplies and always want whatever you bring them.' I noticed that the terms he used to describe forest wilderness were distinct from those of the Sanema; if he felt any apprehension of the forest hinterlands, he certainly did not express it. Indeed, descriptions of its wilderness - a space where 'no-one else had been' - seemed only to stimulate the sense of adventure for him.

Andean prospectors from Peru also talked a great deal about the remoteness of the '*monte*' (forest) where the mines were located. Their descriptions exhibited a sense of foreboding that was similarly present in Sanema discourse, but combined with an idea of 'a virgin forest where there are no people'. Remote mine sites of the 1980s were frequently portrayed as prisons because there was no escape, or seen as voids into which people may never return. The remote inaccessible locales were in fact utilised by mine 'bosses' to hold

workers hostage until they had completed their mandatory 90-day stint. Prospectors spoke of their fear of this unpredictable and undomesticated realm, with frequent flash floods that swept away all their possessions, sudden lightning strikes that claim numerous victims, fierce animals, and inevitable bouts of illness. Even the darkness that descended each night was described as 'deep'. But the forest is also the realm of evil spirits (*chullanchaqui*) who appear as loved ones and entice homesick miners deeper and deeper into the unknown, never to be seen again. As one miner aptly described it; 'the forest is no joke'. As these descriptions highlight, remoteness and its associated concepts become 'not things-in-themselves but things-for-us' (Taussig 1986: 78); that is, externally created moral constructs of the quintessentially unfamiliar.

Back in Venezuela, I remained unconvinced by Aleksy's reverie of immanent fortune, particularly given the mine's remote and unidentifiable location that had only been inferred from a fleeting encounter with a Frenchman. He did, however, offer me a detailed story - relayed to him - of how he might locate the mine. The description indicates the distant and obscure location of the site, but also unveils the networks that facilitate its discovery:

> The Frenchman told me what to do. I start by going to a port town about 6 hours' drive from here where there is an American man who has a lot of connections in the mine. From there he will take me on the 5-day trip upriver to a large waterfall where you sleep the night. The next morning you have to walk to the top of the falls to an army checkpoint. You can either pay the military to pass or you can take a longer route around through the forest to avoid them. From there the American knows an indigenous man who helps him to find the drop-off spot a few more days upstream where you can locate the path to the site. Then you have to walk a few more days through the jungle to finally arrive at the mine. It's all about who you know.

While wilderness and depth are evident in both Sanema and prospector accounts of gold mining, Aleky's story – and his arrival in the region to search for gold - illustrates that remote activities such as wildcat mining are in fact intimately tied up with global markets, even though they are far removed from state and corporate control. Despite the remote and concealed locale, the activities of these areas are certainly not 'disconnected'. Indeed, the reasons behind the recent zealous gold rush that prompted these activities are closely bound to global economies, in particular rising gold prices that soared 360% from 2001 to 2011 alone. More recently, both the Brexit referendum results in Britain the election of Trump – both in 2016 - created further spikes in gold prices, reaching a 3-year high and remaining elevated since this time. Significant political events such as these – with broader global reverberations – inevitably have an impact on informal gold mining throughout the world. Given that countries in South America are major exporters of gold,[v] it is clear that global economic trends have an impact on even deregulated marginal activities such as these.

Yet it is also important to note that these activities proceed precisely because they take place in settings where neither the state nor the corporation are key players in the direct management of mineral wealth exploitation as I shall describe in more detail below. It is important to note, then, that durable and cross-cultural notions of Amazonia's wilderness are intertwined with real global economic integration. With this in mind, I will now move to a description of the historical life and counter-currents of the entrenched notion of Amazonian wilderness in relation to economic connectivity.

A historical reflection on Amazonian wilderness

Looking back into Amazonia's past, as I shall briefly do in this section, reveals how connectedness and complexity are far from antagonistic to Amazonian wilderness, but in

fact define the region's history. The powerful illusion of Amazonia's remoteness stems in part from what is viewed as an acutely foreboding and unruly landscape described by explorers as a terrain of horror and misery: 'the image of stark opposition and of otherness in the primeval jungle' (Taussig 1986: 75). Simultaneously, however, it offers opportunities for hope and prosperity, so that 'like a sponge the succulent jungle absorbs and magnifies human passion' (1986: 77), much like Aleksy's excited search for adventure described above. Nevertheless, thick impenetrable forests are perceived to hamper any systematic domination of the area, and native population dynamics in the region were seen to reflect this: only sparsely inhabited with small numbers of roving bands incapable of growth or complexity due to environmental restrictions. Pierre Clastres's (1987) work on stateless societies traversed the ontological premises of such limiting factors, in particular that the ethos of egalitarianism - rather than the environment - limited expansion. He famously used Amazonian societies as a model for what he referred to as 'societies against the state' in which power – particularly coercive power - was prevented from emerging in these 'archaic societies' through a resistance to surplus, and hence also to hierarchy. Nevertheless, although critiquing a teleological view of development (from savagery to civilization) in order to demonstrate how the absence of a nation-state is not a negative or incomplete state of being, Clastres simultaneously portrayed Amazonia as an ahistorical and permanently pristine world, the quintessence of the wilderness ideology.

Returning briefly to the phenomenon of Amazonian uncontacted tribes, we might now ask what is meant by the term 'uncontacted'. Uncontacted by whom? Those familiar with the photographs snapped from helicopters of these so-called 'last untouched people of the earth' might have noticed that steel tools are brandished, and aluminium pots sit conspicuously in the background. If nothing else, this shows us that these people are not entirely isolated or supposedly unsullied by the trappings of the modern world (see Hugh-Jones 1992: 51). This is not to say that they have direct contact with states, national society

or non-indigenous people, but that they are nevertheless connected to global flows much more than we give them credit. It seems likely that these highly valuable steel items have been procured through trading relationships with neighbouring indigenous peoples, who themselves may have traded with others more intimately connected with the national economy. What is more, 'uncontacted tribes' are dependent on these goods because they actually facilitate their higher rates of mobility and independence by aiding in the rapid clearing of land for new gardens as they move about. Like many other regions of the world labelled 'remote', Amazonia has experienced centuries of socio-cultural change tied to colonialism and mercantile capitalism. Whether peoples who inhabit the area are connected to such historical processes directly or indirectly, they nevertheless encounter global economies in subtle yet palpable ways.

Despite Amazonia's pervasive designation as a 'wild' domain, a number of scholars have sought to demonstrate how the forest is far from a pristine, untouched wilderness. Although it might not look like it, Lowland South America has undergone centuries of human construction and management, resulting in a man-made – "anthropogenic" – forest that problematises the distinction between the wild and the domesticated (see Balée 1998; Rival 2006). This idea was taken even further by some scholars who showed not only that indigenous peoples cultivated the forest, but that, in pre-Columbian times, they actively created large complex societies. Heckenberger offers extensive archaeological evidence from the Xingu region of Brazilian Amazonia from around AD500 – including evidence of ceramics, domesticated crops and large communities connected by roads – to reveal that, rather than being unsophisticated or historically static, Amazonian societies were geographically and politically complex. Certainly, there were drastic changes at the time of contact; European conquest decimated these populations by between 50% and 95% in the first century of contact due to disease and warfare. However, life before contact was not one of quintessential 'remoteness' – it was not an empty, ahistorical or unmodified space.

Then came the rubber boom, a period that began in the middle of the 19th century (1850-1916) when there was a frenzied search for rubber to extract and export overseas. The boom resulted in a large expansion of European colonization of the area, extensively infiltrating even the hinterland regions of the forest in search of rubber trees, attracting immigrant workers and generating great wealth that led to the development of cities such as Manaus, Belem and Iquitos (see Little 2001). Later still, the building of the trans-Amazonian highway in Brazil was another crucial moment in the creation of connectedness in Amazonia. With construction beginning in 1972, the road gradually developed into a 4,000 km stretch of tarmac cutting across the heart of Amazonia. The aim of the highway was to connect the profitable hinterlands of the country to main cities, but also to neighbouring countries such as Colombia, Peru and Ecuador. Many scholars of contemporary Amazonia today continue this trend of emphasizing the long history of shifting and sophisticated political-economic structures, engagement with the modern world, and global connectedness in the region. Harris and Nugent (2004), for instance, show that the forests have in fact been colonised by sundry non-indigenous peoples over centuries, including recent and long-standing immigrants from other parts of south America and abroad, peasant Amazonians, afro-Brazilian refugees from slave plantations, river merchants, and labourers. The 'wild' stereotype has also been challenged with new research on indigenous visibility beyond their forest locales through processes of urban migration, engagement with the state and its services, party politics, environmental agency development agendas, and the advancement of national indigenous organizations (see Alexiades and Peluso 2015; Lauer 2005; Ramos 1998). Resource extraction – Amazonian 'wildcat' mining in particular - is the end point of this historical ebullition of economic activity in the forests of South America, which itself can be intimately tied to structural adjustment programs introduced in the 1980s, causing the poverty that incited this flurry to mining in the first place.

Not only are we now in a 'post-wild world' (Marris 2011), but Amazonia might be better conceptualised as a metropolitan hinterland rather than an inaccessible wilderness. What I will focus on in the remainder of this article are the ways in which the ostensibly remote topography of Amazonia exists alongside discernible connectivity and what this tells us about capitalism's reach. Although authors such as Anna Tsing (2015) and Tania Li (2014) have highlighted the connection between remote locations and global economies, a detailed description of *how* such connections are made possible merits further analysis. It is to this that I shall now turn.

The 'how' of remote infrastructure

As Tsing notes, capitalism today is built on translation across varied social and political spaces, much of which takes place in 'pericapitalist' locales, 'the noncapitalist elements on which capitalism depends' (Tsing 2015: 66). These spaces beyond the remit of capitalist modes of production are nonetheless also salvaged for capitalist accumulation. But thinking through *how* this is made possible requires new tools. Here I shall navigate these concerns with the analytical frame of infrastructure to reflect on the paradox of connected remoteness. Unpacking the possibilities of infrastructure offers insights into the diverse forms that connectivity can take in a globalised world, particularly when thinking about the relationship between centres and margins (see Ardener 2012; Andersson 2016).

Practically speaking, notions of wilderness stem from ideas of connectivity and its absence. It's ideological opposite - spatial integration - offers 'the possibility of exchange over space' (Larkin 2013: 327) which is enabled through what we often refer to as infrastructure. The term infrastructure invariably evokes images of state expansion or corporate profit, substantiating modernity and progress through a 'technopolitical terrain consisting of pipes, energy grids, and toilets' (Anand, Gupta and Appel 2018: 4). Since the nineteenth century, infrastructure has been integral to the organization of a highly

regulated and state implemented market economy, prevailing both as the antithesis to remoteness and as a sign of 'state presence and of state neglect' (Harvey and Knox 2015: 3). The purpose of infrastructure, then, is to ultimately engulf 'zones of weak or no sovereignty' (Scott 2009: xii). Beyond their representation as exemplars of state-initiated progress and control, however, these socio-material arrangements of expansion also offer networks of possibility for the populace through their tangible linkages to broader social and economic forms.

Nevertheless, this is not to suggest that infrastructure's analytic potential is limited to statecraft and corporate expansion; non-institutional infrastructures are also (and always have been) formed independent of institutions, but also when states fail to deliver, or when formal infrastructures break down. Whatever form infrastructure takes, or whatever the source, citizens are either central to their creation, or to buttressing them behind the scenes. Not only do social arrangements constitute infrastructural forms as much as physical state technologies, infrastructures equally "*give form* to culture, society, and politics" (Bruun Jensen and Morita 2017: 617, original emphasis). In their work on roads, Harvey and Knox (2015) illuminate the non-material social worlds that lie behind the material forms and bring them into being: the planning, construction, relational entities, engineering imaginaries, and so on. Indeed, infrastructure becomes somewhat insubstantial without the people that bring connectivity to life. As a result, 'a focus on infrastructure as both virtual and actualized relational spaces' (2015: 6) allows us to view it 'as sociotechnical assemblages through which it is possible to tease out the arrangements of people and things and materials that make up larger technological systems' (2015: 3). Other scholars such as Simone (2004) and Carse (2012) have similarly shown how infrastructure should be seen not solely as networks of hardware, but as the interrelated and mutable arrangements of people and nature (see also Cross 2016). One could argue, then, that the relationality itself – even without the resulting material constructions – is the infrastructure.

Having considered the 'what' of infrastructure – its characteristics and outcomes - we might also consider the 'how' - the arrangements that enable certain infrastructural forms to operate (see Appel 2012: 692). The 'how' refers to techniques and ideologies that propel and facilitate physical infrastructural forms, whether the standardisation and grid-making of 'statecraft' (Scott 1998: 8) or the assemblages of road building expertise (Harvey and Knox 2015). The 'how' of infrastructure at its zenith (specifically that facilitate capitalist flows) might not be that of the state, but rather of the global corporation, particularly the petroleum industry and its expert profit-making architecture. Ferguson (2005), for instance, explores the arrangements through which capital, information, materiality and people move in contexts of foreign oil enclaves. This specific type of capitalist territorialisation plays out not as a spread but a hop, facilitating 'point-to-point' jumps (2005: 380), 'networked bits' (2005: 380), 'connects discrete points' (2005: 379), and areas 'off the grid'. The 'how' of this infrastructure promotes an entire economic system that separates itself out from the host society, that bypasses nation-states and the surrounding communities altogether. Mitchell (2011) similarly describes oil infrastructure - pipes that transport the viscous and fluid energy source – engendering markedly less pliable democratic possibilities owing to a scant workforce who find it difficult to assert their political demands. The 'how' of corporate infrastructure can also be viewed as standardising processes, as Appel (2012) outlines when describing the 'modularity' of offshore oil rigs: 'a bundled and repeating set of technological, social, political, and economic practices aimed at profit making that the industry works to build wherever companies find commercially viable hydrocarbon deposits' (2012: 697). As Appel views it, these hydrocarbon practices - audit procedures, technologies, people, and legal regimes – enable corporations to disentangle themselves from the specificities of any socio-political context and self-replicate regardless of their global locale.

The examples of corporate forms of extraction demonstrate that the 'how' of this infrastructure - that is, the arrangements that enable them to operate – consist of control, self-containment and systematicity, specifically with the aim of profit-making. But what of remoteness? What of the informal structures of the 'pericapitalist' mode? The rhythms and flows of wildcat gold mining in Amazonia do not consist of control, self-containment and systematicity. They are neither bounded nor composed of networks, but take on an altogether more amorphous and uncontrollable form. Following Mol and Law's (1994) approach to 'fluid spatiality', we might envisage the 'how' of this remote infrastructure as far more flexible. Describing how tropical doctors diagnose anaemia, Mol and Law note how space in this case (geographical and social) transcends bounded uniformity or networks of relational variety. As such, they reconceptualise the social as topological space – with the properties of stretching, twisting and crumpling, or as several kinds of space existing at any given time (see also Saxer and Andersson, this volume) – thus exploring it as inherently mutable and unstable. As they put it, 'sometimes boundaries come and go, allow leakage or disappear altogether, while relations transform themselves without fracture. Sometimes, then, social space behaves like a fluid' (1994: 643). Being fluid, as Mol and Law describe it, the inside and outside are indistinguishable from one another (1994: 660) in much the same way that the 'wild' is intimately connected to global processes; turned inside out, as it were.

The next section will demonstrate that a view of 'fluid infrastructures' can reveal how connections are forged in Amazonian mining regions where connectivity is – on the surface anyway – seemingly limited. Ultimately this perspective on remoteness reveals a system of far more complex and versatile arrangements underpinning purportedly isolated and inaccessible regions of the world.

Outside the grids, inside the fluid

The marginal landscapes that prospectors must negotiate in order to reach the informal mine site in Amazonia consist of impervious forests, raging waterfalls and unpredictable water courses, precisely the types of locales that engineers often struggle to manage in contexts of formal infrastructural development (Harvey and Knox 2012). This is a setting without standardization, regulation or the 'rationalization of complexity' (Harvey and Knox 2015: 9). Yet, the fluid infrastructures of remoteness do not attempt to order or homogenise the unruliness of the forest; on the contrary, they emerge precisely from complex and anarchic topography. But how does the gold - that starts in these remote hinterlands – end up circulating in global economies?

While Peruvian miners infrequently referred to the global economic significance of the gold they were extracting unless prompted, it lurked behind their curiosities regarding its perplexing desirability, but also concerns about its potential to drop in value at any given moment. Many miners talked about the continually fluctuating price, as one stated: 'It goes up and down, up and down. It never maintains one price'. Often when I followed up such statements with the question 'why?', their responses were vague, but always pointed to unknown spaces beyond Peru. Gold was a mobile mineral whose value swept it away far beyond the mine: 'gold always leaves the country', 'it depends on the dollar', 'they melt it and send it abroad, mostly for jewellery', 'it goes to other countries who want luxury. It doesn't stay in Peru, because Peru is a poor country'. One gold trader, who negotiates the price of gold on a daily basis, stated that 'They say that the value changes because of the global situation. In the news you always hear about problems from other countries – big countries - and this affects the price of gold. When no countries want to invest and they are peaceful, the price goes down'. This trader was astutely referring to spikes in the price of gold during moments of global crises, which impel states to purchase gold for their reserves to hedge against currency devaluation. Gold's global importance,

then, is more than evident to most miners, but getting it to these global networks requires practical strategies of ingenuity.

As mentioned, Amazonia's uncontrolled environments allow informal mining to proceed clandestinely through the 'fluid spatiality' of remote infrastructure alluded to above (see also Ishii 2017). Without these characteristics, the gold mining that takes place in Amazonia would be unable to participate in capitalism's edges (see Tsing 2015). In Venezuela - the more remote of the two sites - infrastructure creates stops and starts, ebbs and flows, visibility and invisibility. This is not a setting of space-time compression (Harvey 1989) but of space-time stops and starts. The first leg of the journey – the river - is flowing and fast, but it is also exposed, where patrolling military can plainly see smugglers and pull them over to check their supplies and paperwork. Yet where the fluid river's edge meets the tangle of a forest path – the second leg of the journey - the forested terrains are difficult and slow, as miners haul equipment on foot in the hot and uneven landscape. There are two locations at which miners must disembark and find their way, carting their equipment with them, through thick forest terrains: at the foot of a waterfall and at a disembarking location from where they must walk another day to reach the mine site. Crude routes are continually re-carved through the labyrinthine undergrowth when new military blockages (checkpoints) demand alternative pathways to circumvent the obstruction. But they are hidden; though the terrain is arduous, the risk of apprehension is low. Indeed, the fear of the forest realm described above could be seen to closely inform the creation of these fluid infrastructural forms that attempt to circumvent hazardous and inauspicious settings.

Overlaid on this physical infrastructure are the social forms that may either help or hinder, may flow or clog their progress. Webs of sociality and influence that constitute these fluid infrastructures extend throughout the flexible pathways to the mine, where people dispense supplies of gasoline with those in need, share information on supply shortages as they cross paths, and introduce each other to new contacts who can facilitate

the procurement of paperwork required to transport gasoline. Meanwhile, others brave the check-points in an attempt to generate fluid passages through the human terrain, lubricating possibilities of the social. Rumours flow in and out too, and sometimes reach far beyond the site itself, invading imaginaries of what mining might yield. Aleksy, who was introduced at the start of this article, was one such dreamer. As we saw above, he described in detail the innovative and often non-physical arrangements that ensured mining activities continued to operate despite all odds. He had been told – indeed given a plan – of how to reach the mine site in southern Venezuela with the use of intricate webs of sociality, mobility, negotiations and knowledge that continually flowed in and out of the mine site. Aleksy described numerous people who were socially 'connected', as well as opportunities for informal movement through hitch-hiking, associations between indigenous and non-indigenous actors, the acceptance of bribes, and the passing of messages and materials along unruly and unmanaged pathways. Although power dynamics are clearly at play here, these too shift and continually reform.

Transporting supplies in and out of these remote regions presents an altogether contrasting dynamic, as bringing items in is always more complicated than getting them out. Large bulky equipment and tools, such as huge hydraulic machinery and generators, must be the first to make their way in, followed thereafter by regular supplies of gasoline that are hauled up the makeshift forest paths on a daily basis to sustain the machinery that is the lifeforce of the mine. The galumphing equipment, I was told, never makes it out though, left deserted in the forest when finished with, even if still fully functioning. In Peru, miners described how the forests are scattered with abandoned machinery. But the extracted gold speeds rapidly down to the city, its small form hidden easily in pockets and shoes. It breezes through forests and slips down rivers, ending up where formal state-sponsored infrastructure such as roads can whisk it away on the rest of its journey to the global gold marketplace. Once at the frontier towns, it moves from the miners' pocket to

a gold traders stash. It is smuggled over borders (from Peru to Bolivia and from Venezuela to Colombia), through organised crime networks, eventually to precious metal refining and trading companies based in Switzerland, the USA and Dubai. In this sense, the fluid infrastructure of remoteness effortlessly links together isolated and transnational networks (see also Gardini, this volume); but its movements also ebb and flow with the booms and busts of global finance and resource markets.

As these descriptions demonstrate, the fluid infrastructures of remoteness are layered assemblages of multiple material and immaterial forms that are continually unfolding. These infrastructural forms do not organise in a formulaic way but intermingle haphazardly. In addition to the flowing and abating rhythms of the journey to the mine according to the varying terrains, the movements in and out of the mine site are also repeated rhythms of fast and slow; strenuous entrances and accelerated exits. The disparate forms link up: fluids link to grids, informal infrastructures meet formal ones, people-led to state-led, illegal to legal. The irregular flows tag onto the trailing end of capitalism's uniform infrastructure. Indeed, remoteness ***is*** the infrastructure, it is the 'how' of economic integration in settings where thick and impenetrable forests resist large-scale domination.

Conclusion

Concepts of remoteness and connectivity evoke imaginaries stemming from colonial expansion in which explorers bravely penetrated the edges of known space: empty timeless spaces of intrigue, danger, lawlessness and adventure. This was the perception in historical and scholarly circles, but it is also evident in both Sanema and miners' stories too. Intertwined with these durable and cross-cultural notions of Amazonia's mysterious wilderness are the historical, real life and practical trajectories that reveal the inverse of these sensibilities: that Amazonia is tightly interconnected with broader social and economic forms. There is evidence of complex connectivity stretching back to the pre-

Colombian past, but also strong links with global economic systems in more recent history, from the rubber boom to the current global gold trade.

Although we might challenge the use of entrenched terms such as 'deep', 'wild' and 'remote' when talking about areas that do indeed have a long history of connectedness to global political and economic structures, this article has also looked in more detail at how such ideas develop. Remoteness by its very nature is a lack; a lack of connection, of progress, of organised planning. In a word, it lacks the infrastructures that we have come to expect with state expansion and development: roads, buildings and power supplies. Yet, this does not preclude other forms of infrastructure, such as those described here, extensive and fluid trade networks, transmuting forest paths, delayed exchange relationships, verbal communication systems over large distances, and networks of illegality. Non-institutional infrastructure of wildcat gold mining – created and adapted by people on the ground – arise precisely out of a desire to link to global economic networks. This is a promise of infrastructure (Anand, Gupta and Appel 2018: 3) that they themselves actualise.

As Das and Poole (2004) have shown in their work on state margins, peripheral areas of the world do not always end up being 'domesticated', but resist domestication in order to permit global capitalism to proceed in its particularizing ways and manifold forms. In the case of Amazon gold mining, remoteness becomes an asset that facilitates a particular form of fluid connectivity that allows capitalism to reach into even the 'deepest' and most 'wild' areas of the world. Remoteness, then, is not the quintessence of the 'outside' or a peripheral emptiness; rather, these terrains are precisely what the Sanema regard as the *real* 'inside'. They are – and always have been – 'simultaneously inside and outside' (Tsing 1993: 26), overlapping with, and fundamentally *central* to broader economic concerns. They are the wild turned inside out.

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[i] The term 'wildcat' in this context refers to individual and unofficial prospecting, but also to the commercially unsound or risky nature of the activities, outside the bounds of standard or legitimate business practices. The use of the word 'wild' in this is not insignificant.

[ii] The Sanema are a Yanomami language group who inhabit the forested regions of southern Venezuela and northern Brazil.

[iii] While the sites in Peru currently run along a highway, many of the miner life histories that I collected go as far back as the 1980s before the building of the transoceanic highway when the site was more remote and only accessible after several days travel upriver. The mine site in the Venezuelan context was up to a week's travel into the hinterlands of the forest.

[iv] All personal names in this article have been changed to protect the identities of people involved.

[v] Peru alone exports approximately $2.6 billion in illegal gold per year (The Global Initiative against Transnational Organized Crime 2016) *https://globalinitiative.net/case-study-illegal-gold-mining-in-peru/* (accessed 28/03/2019).